Health Consultation

INTERSTATE POLLUTION CONTROL INCORPORATED

ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

(a/k/a IPC-TDF TIRE FIRE
CAHOKIA, ST. CLAIR COUNTY, ILLINOIS)

CERCLIS NO. ILT180011975

JUNE 30, 1997

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

HEALTH CONSULTATION

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Prepared by:

Illinois Department of Public Health
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

BACKGROUND AND STATEMENT OF ISSUE

The U.S. Environmental Protection Agency (USEPA) performed an Emergency Removal Action at a tire fire on the IPC-TDF site (hereafter IPC) in February 1997. The Agency for Toxic Substances and Disease Registry (ATSDR) has requested that the Illinois Department of Public Health (IDPH) review the information available on this removal action to determine if a threat to public health exists.

The IPC site is in St. Clair County, Illinois, approximately 2 miles southeast of St. Louis, in the cities of Cahokia and Sauget (Attachment 1). The site consists of 10 acres surrounded by commercial property and light and heavy industry. The site is bordered by railroad tracks to the north and west, Illinois Route 3 to the east, and Mobil Chemical-Phillips Pipeline to the south. The Mississippi River is about 1 mile west of the site. Along Route 3 directly east of the site is a Hardees Restaurant, a Moto Mart gas station, a small tavern, and Cerro Copper Products. Three homes are approximately 500 feet east of the site with additional homes in subdivisions approximately 1/4 mile southeast of the site. There are more than 1,400 people living within a one-mile radius of the site. In addition, several other waste sites exist near the IPC site that are currently listed in the CERCLIS system. These sites are currently undergoing investigation by IDPH and IEPA (Attachment 2). [1]

The site is currently owned by Empire Chemical Realty, Inc., who leased the site to IPC for recycling used tires. On February 13, 1997, at 5:00 p.m., a tire fire was ignited in the southern portion of the site by an unknown source. The fire covered three acres and consisted of 30,000 cubic yards of shredded used tire material. After attempts to extinguish the fire by the Cahokia and Sauget Fire Departments failed, the Illinois Environmental Protection Agency (IEPA) was contacted for assistance. Shortly after that, IEPA notified staff from USEPA Region 5 in Chicago. USEPA Emergency Response staff was soon dispatched and on-scene coordinators arrived on site at 9:00 a.m., February 14, 1997. [1]

After assessing the situation, the on-scene coordinators determined that the best way to extinguish the actively burning fire would be to cap it with on-site soil using heavy equipment. Immediate response was necessary for public health and welfare concerns, and the fact that the fire threatened a nearby building that contained thousands of additional tires. During the response action, a Superfund Technical Assistance and Response Team contractor conducted real time air monitoring of the smoke generated by the burning and smoldering tire piles. The monitoring indicated that particulates were being generated in the immediate area of the fire at levels that exceeded site action standards based on guidelines set by the National Institute for Occupational Safety and Health. During the fire, the smoke and particulates were being blown away from the site in an easterly direction. Besides airborne smoke and particulates, oil generated by the burning tires was running off onto the soil. The emergency response activities conducted by USEPA were completed in three on-site working days. [1] The covered tires continued to smolder for several weeks within the dirt mound. Approximately one month

following the fire, IEPA uncovered the pile and found roughly one foot of charred material, one foot of melted tire material, and 10 - 12 feet of unburned tire chips. [2]

During a visit by IDPH on May 1, 1997, the site was observed to contain a number of dilapidated buildings, heavy equipment for demolition activities, a large dirt mound covering the former fire in the southeast portion of the site, and unburned piles of shredded tires. The site was surrounded by a six-foot fence with three strands of barbed wire and contained numerous gates for spurs coming off the bordering railroad. The site is sparsely covered with vegetation and has level topography.

The current clean up of the site by Empire Chemical is being pursued in three phases. The first phase involves the removal of whole tires housed in buildings and unaffected by the fire. The second phase is the removal of shredded tire piles on the site not involved in the fire. The last phase is the unearthing of the burned tire mound and off-site disposal of the materials contained in the mound. IEPA is planning to use any recovered tire shreds for a road bed project as was originally intended before the fire. Currently, the first two phases are complete with plans to complete phase three and remove all fire debris in the future. [2]

Presently no environmental sampling has occurred at the site of the tire fire. According to IEPA, the site is currently being investigated for suspicion of environmental contamination existing before the tire fire. IEPA assumes that the entire site will enter the Illinois voluntary clean up program or become a part of Superfund in the future.

DISCUSSION

Tires are a petrochemical product that, when burned, are known to generate hazardous smoke that contains benzene, toluene, ethyl benzene, xylenes, and other volatile organic compounds, polycyclic aromatic hydrocarbons, particulates, and metals. [3] Due to the prevailing east wind during the fire, local residents were undoubtably exposed to some amounts of these hazardous substances during the two days the fire was actively burning. The lack of off-site sampling data makes it impossible to quantify this past exposure.

Inhalation of smoke and particulates can cause respiratory irritation especially in sensitive persons with compromised respiratory function. The smoke would also produce noticeable odors. Inhalation of polycyclic aromatic hydrocarbons over long periods of time have been shown to cause cancer. [4] In this instance, the exposure was of a short duration and would not be expected to cause long-term health effects.

Besides airborne contaminants, we assume that the soil surrounding the fire was affected. Tire fires create a great amount of heat at the base of the fire that causes the tires to become pyrolyzed. The product of this pyrolysis is a dense oil that helps to nourish the fire and can leach into the soil around the fire. Each burning tire can produce seven gallons of this oil. [3] The

into the soil around the fire. Each burning tire can produce seven gallons of this oil. [3] The subsoil that might have been contaminated is currently covered by on-site soil used to extinguish the fire. Exposure to contaminated soil by direct contact or inhalation would not be expected currently, but disturbance of the soil mound during excavation of the burnt tire material could allow for exposure. If contaminated soil is near the ground surface, direct contact with contaminants is possible and fugitive dust could carry contaminants off site.

Another potential result of the tire fire is the contamination of groundwater from contaminants leaching through the soil. The Sauget and Cahokia Fire Departments attempted to extinguish the fire with water for 5 ½ hours before seeking assistance. This water, in addition to future precipitation, could cause the migration of any existing soil contaminants into groundwater. If local groundwater is used for drinking purposes, this could also lead to exposure by local residents. Considering the proximity of the river, groundwater flow should be westward and away from the residential area. Due to the presence of other nearby hazardous waste sites, numerous groundwater monitoring wells already exist in this area.

The presence of demolition equipment creates a physical hazard for trespassers on the site. Site access is limited due to the presence of a six-foot fence with barbed wire surrounding the property. However, during the site visit, one fence gate along the western site border was observed to be unlocked. Trespassers could easily enter the site by walking along the railroad tracks and entering through this unlocked gate.

CONCLUSIONS

Based on the limited information available and the fact that site access is restricted when gates are locked, IDPH concludes that there is no apparent public health hazard existing from the IPC tire fire. In addition, IDPH concludes that:

1. Surrounding residents were possibly exposed to particulates and low levels of contaminants from smoke carried off site during the tire fire. It is not possible to assess the health risks from these exposures due to lack of environmental data.

2. A physical hazard exists on site due to the presence of demolition equipment, but access to the site is limited, although not impossible.

3. Information regarding on-site soil and water contamination as a result of the fire is currently not available.

4. If contamination exists on site, trespassers or workers could be exposed to hazardous substances via ingestion of, inhalation of, and dermal contact with soils and sediments.

RECOMMENDATIONS

IDPH makes the following recommendations:

1. Restrict public access to the site by ensuring that all gates are locked.

2. Characterize the soil in the three acres of the tire fire to determine if contamination exists.

3. If soil contamination exists, install monitoring wells to assess the groundwater of the site.

4. Perform an additional health consultation for the site if further investigation of contamination from both the tire fire and previous site activities produces data that indicate that other exposures are possible.

Jennifer Slightom
K.D. Runkle
Environmental Toxicologists

REFERENCES

1. USEPA. Action Memorandum-Request for an Emergency Removal Action at the IPC-TDF Tire Fire. March 1997.

2. Personal Communication, Paul Purseglove, IEPA Bureau of Land Pollution Control. May 1997.

3. USEPA. Environmental Response Video. Tire Fires.

4. ATSDR. Toxicological Profile for Polycyclic Aromatic Hydrocarbons Draft. February 1994.

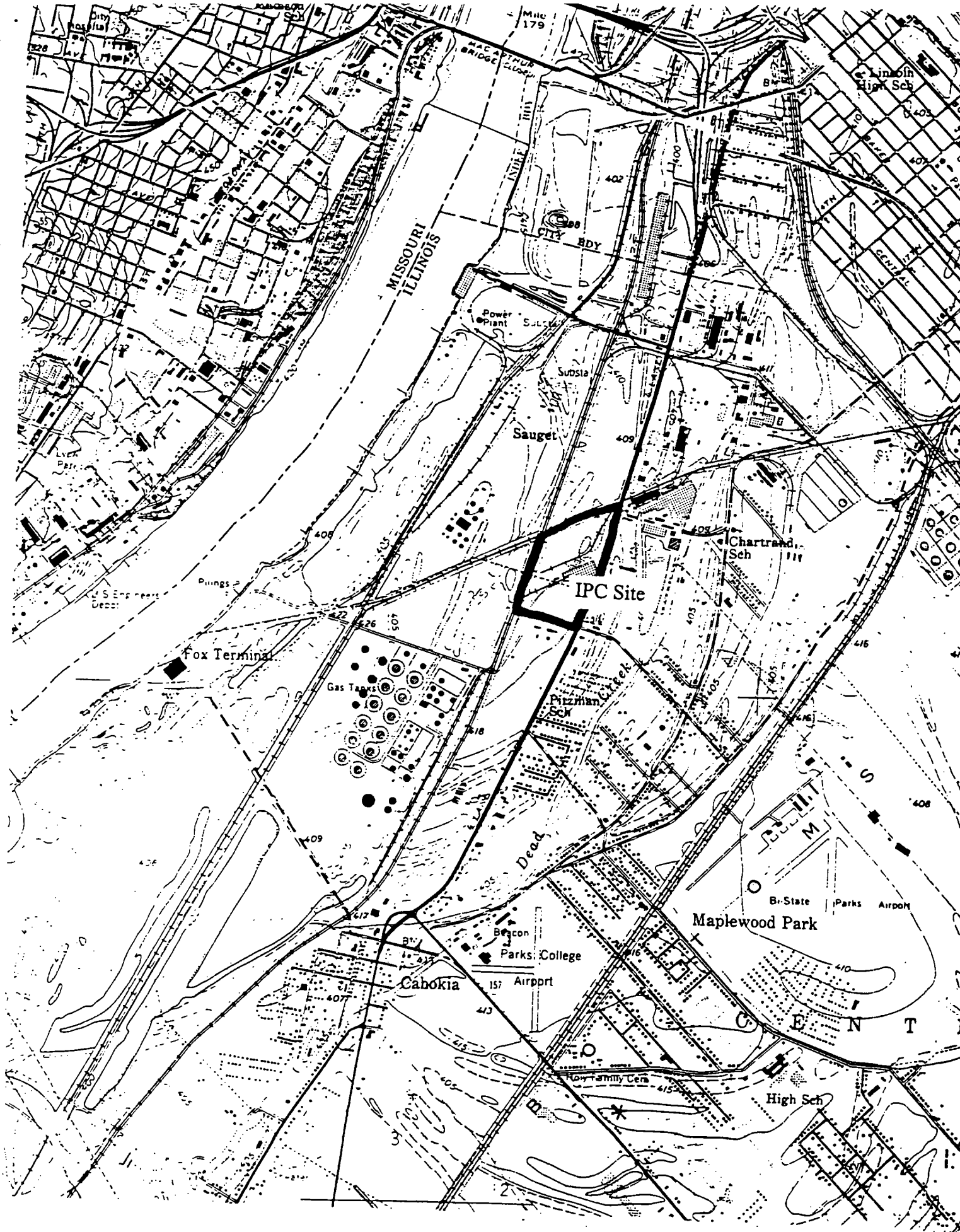
CERTIFICATION

This IPC-TDF Tire Fire Health Consultation was prepared by the Illinois Department of Health under Cooperative Agreement with the Agency for Toxic Substances and Disease Registry. It is in accordance with approved methodology and procedures existing at the time the Health Consultation was initiated.

Technical Project Officer
SPS, SSAB, DHAC

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this Health Consultation and concurs with its findings.

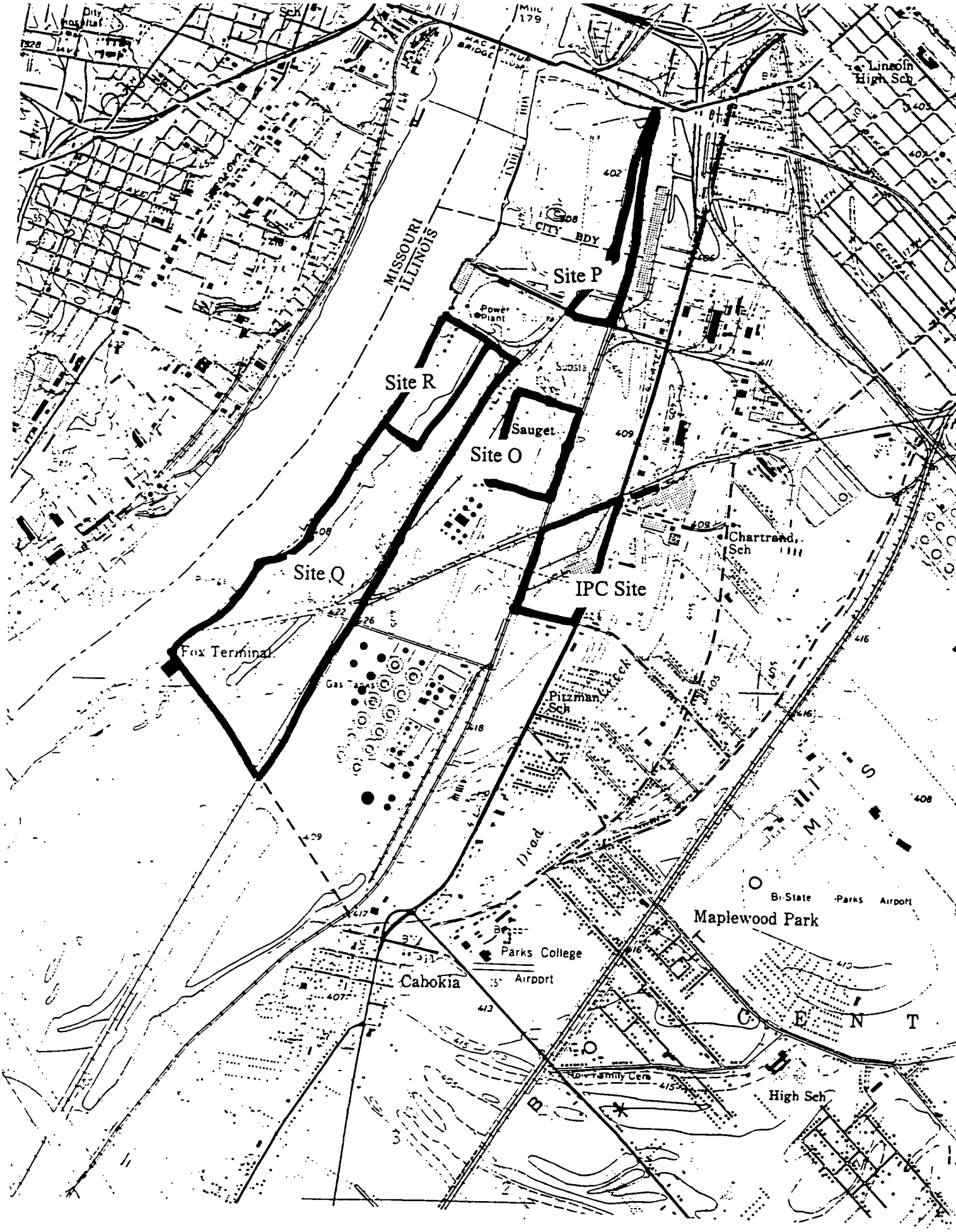
Chief, SPS, SSAB, DHAC, ATSDR



ATTACHMENT 1

LOCATION OF IPC SITE

Source: USGS Topographic Map
7.5 Minute Series
Cahokia Quadrangle
Scale 1:24,000



ATTACHMENT 2

LOCATION OF IPC SITE IN PROXIMITY TO SAUGET SITES

Source: USGS Topographic Map
7.5 Minute Series
Cahokia Quadrangle
Scale 1:24,000